

Appl. No. 10/707,561
Amdt. dated January 11, 2005
Reply to Office action of October 18, 2004

REMARKS

Claims 1-3 and 10-19 are rejected under 35 U.S.C 103(a) as being unpatentable over Ishikawa et al (USPN 6,257,966) in view of Togawa et al (USPN 6,319,105).

Claims 4-9 and 20 are rejected under 35 U.S.C 103(a) as being unpatentable over
5 Ishikawa et al (USPN 6,257,966) in view of Togawa et al (USPN 6,319,105) as applied to claims 1-3 above.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hirata (USPN 6,126,530), Yoshida et al (USPN 6,293,855) and Wada et al (USPN 6,752,692) are cited to show wafer grinding apparatus having cleaning device.

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1. Response to the rejection of claims 1-3 and 10-19 under 35 U.S.C. 103(a):

To claim more clearly, independent claim 1 has been amended. No new matter is introduced. Reconsideration of the currently amended claim 1 is therefore politely
15 requested.

The amended claim 1 discloses that a suction pad includes a first surface and a second surface, which is flexible and used to suck a wafer, the first surface and the second surface of the suction pad are cleaned respectively by a first nozzle and a second nozzle
20 when the suction pad stays in a parking region, and the first surface of the suction pad and the wafer are cleaned respectively by the first nozzle and the second nozzle when the suction pad passes through the parking region. Therefore, the present application utilizes the flexible second surface for sucking the wafer to decrease an impact force sustained by the wafer while the wafer is sucked by the suction pad and utilizes the first nozzle and the
25 second nozzle for washing contaminants from the suction pad and the wafer to prevent cross-shaped flaws from forming in the wafer.

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The examiner stated that a suction pad 35 included in a transfer robot 28 of Ishikawa et al (USPN 6,257,966) has a first surface and a second surface, and the second surface is flexible for sucking a wafer 26. Actually, the applicants of the present application find that Ishikawa et al did not disclose the second surface of the suction pad 35 is flexible. Even though Ishikawa et al stated the transfer robot 28 is preferably provided with the same suction disc as a suction disc 68 (column 6, line 1-2), the suction disc 68 is not flexible. Ishikawa et al disclosed that a suction surface 68A of the suction disc 68, which is formed by a porous body 73, generates sucking force such that the entire surface of the wafer 26 can be held on the suction surface 68A. The porous body 73, for example, is made of porous ceramic, sintered metal or porous resin (column 5, line 38-44) and the suction surface 68A serves as a stiffening plate for the wafer 26 to prevent the peripheral edge of the wafer 26 from chipping or breaking when the thin wafer 26 is held or transported (column 5, line 55-58).

Furthermore, Ishikawa et al disclosed that the wafer 26 is held on a chuck table 48 and transferred between a rough grinding stage 18 and a finish grinding stage 20 (column 4, line 44-54). It is different from the present invention, which utilizes the suction pad for sucking and transferring the wafer from a grinding table of a coarse-grinding device to a grinding table of a fine-grinding device. Therefore, Ishikawa et al are unable to imagine the problem of cross-shaped flaws forming in the wafer and fail to prevent the problem.

Compared with the present application, Ishikawa et al fail to disclose a suction pad having a first surface and a second surface, the second surface being flexible for sucking a wafer. The wafer grinding apparatus of Ishikawa et al including the first and second nozzles of Togawa et al (USPN 6,319,105) fails to achieve the objective of the present application in which the flexible second surface sucks the wafer to decrease an impact force sustained by the wafer while the wafer is sucked by the suction pad and in which a first nozzle and a second nozzle wash contaminants from the suction pad and the wafer to prevent cross-shaped flaws from forming in the wafer.

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In conclusion, the combination of over Ishikawa et al (USPN 6,257,966) in view of Togawa et al (USPN 6,319,105) does not render the amended claim 1 of the present application unpatentable. As claims 2, 3, 17-19 and the amended claims 15-16 are
5 dependent upon the amended claim 1, they should be allowable if the amended claim 1 is allowed. Reconsideration of the amended claims 1 and 15-16 and claims 2, 3, and 17-19 is therefore politely requested.

2. Response to the rejection of claims 4-9 and 20 under 35 U.S.C. 103(a):

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According to the MPEP Sec. 2143.03, which is repeated as follows:

"If an independent claim is non-obvious under 35 U.S.C.103, then any claim depending therefrom is non-obvious. (In re Fine, 837 F.2d 1071, 5 USPQ (CCPA 1988))"

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Claims 4-9 and 20 are dependent on the amended claim 1 and should be allowed if the amended claim 1 is non-obvious. Reconsideration of the rejection of claims 4-9 and 20 is therefore respectfully requested.

20 3. Response to the citation of Hirata (USPN 6,126,530), Yoshida et al (USPN 6,293,855) and Wada et al (USPN 6,752,692) showing a wafer grinding apparatus having a cleaning device pertinent to applicant's disclosure:

The present application emphasizes utilizing a flexible second surface for sucking a
25 wafer to decrease an impact force sustained by the wafer while the wafer is sucked by a suction pad and a first nozzle and a second nozzle to wash contaminants from the suction pad and the wafer to prevent cross-shaped flaws from forming in the wafer. Hirata, Yoshida et al and Wada et al never teach and suggest these features even though they are

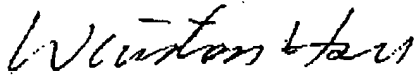
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cited by the Examiner to show a wafer grinding apparatus having a cleaning device.

In light of the above reasons, applicant respectfully requests that a timely Notice of Allowance be issued in this case.

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Sincerely yours,



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10 Winston Hsu, Patent Agent No. 41,526
P.O. BOX 506, Merrifield, VA 22116, U.S.A.
Voice Mail: 302-729-1562
Facsimile: 806-498-6673
e-mail : winstonhsu@naipo.com

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